WEEKLY FOCUS
#45 WEEK 3, JUNE 2021

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CONSERVING THE FORESTS

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INTRODUCTION

The Global Forest Watch (GFW) reported that the number of forest fire alerts in April 2021 (India)has been the highest in the last five years.India also lost nearly 38.5 thousand hectares (Kha) of tropical forest between 2019 and 2020 making up nearly 14 percent loss of its tree cover. These are some of the examples which highlight the vulnerability of the Forest Ecosystems which get compounded due to extreme weather events like droughts, floods and heatwaves and anthropogenic activities like forest degradation and deforestation.

These grave threats to the forest ecosystems directly impact the possibility of life on the planet by aggravating climate change, affecting the biological cycles at the macro-level and directly affecting the sources of food and livelihood for a large section of the population. Ministry of Environment & Forest and Climate Change (MoEF&CC) and international agencies like Intergovernmental Panel on Climate Change (IPCC) have acknowledged this reality, and efforts are being made in the form of environmental conservation laws, awareness generation campaigns and systemic conservation strategies.

Before we delve into the details of the conservational issues and the potential strategies, it becomes important to understand what exactly is forest conservation and what importance does it hold? What are the threats that India is facing while conserving forests? What steps have been taken by the government to overcome these threats? What could be the potential strategies to achieve the desired level of forest conservation? In this article, we will attempt to answer these questions.

WHAT IS CONSERVATION AND WHY FOREST CONSERVATION IS ESSENTIAL IN THE LARGER SCHEME OF THINGS?

Conservation is the **act of protecting Earth's natural resources** so that they can persist for future generations. It includes maintaining diversity of species, genes, and ecosystems, as well as functions of the environment, such as nutrient cycling. In this context, forest conservation boils down to **protecting the forest ecosystem,** ensuring **sustainable use of forests** and at the same time making efforts to **expand the area under forest cover.**

Forests are a vital part of human life. The importance of forest conservation gets reflected in their linkage with Sustainable Development Goals (SDGs). These linkages and the impact that Forest Conservation has on human lives can be illustrated through **UNSPF's six Global Forest Goals (GFGs) which directly support the SDGs-**

Global Forest Goals

The **United Nations Strategic Plan for Forests 2017-2030 (UNSPF)** was created by the Member States of the **United Nations Forum on Forests (UNFF)** to provide a global framework for action at all levels to sustainably manage forests. At the heart of this Strategic Plan are **six Global Forest Goals (GFGs).**

Global Forest Goal	Linkage with SDG	Impact
GFG 1 Reverse Forest Cover Loss	It includes **SDGs 13 (climate action) and 15 (life on land).** Its targets include: ● **Increase forest area by 3% worldwide by 2030** (an area of 120 million hectares). ● Maintain or enhance the world's forest carbon stocks by 2030.	● Helps in mitigation of Global Warming which indirectly helps in the **reduction of natural disasters,** including floods, droughts, landslides, and other extreme events. ● **Increase support to more than 80% of the terrestrial species** of animals, plants, and insects who live in the forest ecosystem.
GFG 2 Improve Forest Benefits and Livelihoods	It helps in achieving **SDGs 2 (zero hunger) and 6 (clean water and sanitation).** The **targets are:** ● **Eradicate extreme poverty** for all forest-dependent people by 2030. ● Enhance the contribution of all types of forests to biodiversity conservation and climate change mitigation and adaptation by 2030.	● **Affecting 1.6 billion people directly** who depend on forest for timber, food, fuel, jobs, and shelter. ● **Protection to 75% of freshwater** which comes from forest watershed areas. ● **Securing of the food sources,** as about 50% of the fruits we eat come from trees.
GFG 3 Protect Forests and Use Sustainable Forest Products	It is meant for **SDGs 7 (affordable and clean energy) and 15. The target include:** ● Significantly **increase the area of forests worldwide designated as protected areas or conserved** through other effective area-based conservation measures by 2030.	● **Directly impacting 2.4 billion people** who use wood fuel for cooking, boiling water and heating. ● It will have an **impact on global energy profile** as forests provide 40% of the entire world's renewable energy.
GFG 4 Mobilize Resources	It promotes **SDGs 1 (no poverty), 3 (good health & well-being), 8 (decent work and economic growth) and 17 (partnership for goals).** Its **target include:** ● **Mobilize significant resources from all sources** and at all levels to finance sustainable forest management and provide adequate incentives to developing countries.	● **Increased accessibility to medicines.** For instance, 2/3rd of all cancer fighting medicines come from rainforest plants. ● **Boosting tourism.** Nature based tourism accounts for nearly 20% of the global tourism market.

GFG 5 Promote Inclusive Forest Governance	It assists in **SDGs 2, 7, 11 (sustainable cities and communities) and 16 (peace, justice & strong institutions). The target is to:** ● **Enhance forest law enforcement and governance,** including through significantly strengthening national and subnational forest authorities.	● **Supporting cities** by providing close to 1/3rd of **drinking water needs** of world's largest cities. ● **Addressing hunger.** Globally, 76 million tonnes of food comes from forest, 95% of which is plant-based. ● **Promote local governance** through forest-based community relationships.
GFG 6 Cooperate and Work Across Sectors	It enriches the **SDGs 5 (gender equality), 11, 12 (responsible consumption & production), 15.** The **target include:** ● Significantly **enhance cross sectoral coordination and cooperation** to promote sustainable forest management and halt deforestation and forest degradation at all levels by 2030.	● **Making urban ecosystems livable** as trees and parks clear air, reduce noise and help improve collective health. ● **Encouraging sustainable usage of forests** which will be essential given the growing population and already prevalent scarcity of resources.

From above linkages, it seems clear that the forest ecosystem is interlinked with economic, cultural, and social ecosystems prevalent in the region and conservation of forests has an impact on almost every basic aspect of one's life and livelihood.

Forest Basics

The FAO (Food and Agriculture Organization) has defined forest as land with **tree crown cover (or equivalent stocking level) of more than 10%** and area of more than 0.5 hectare.

- Forests can develop wherever the **average temperature is greater than 10 °C in the warmest month and rainfall exceeds 200 mm annually.**
- In any area having conditions above this range there exists a variety of tree species grouped into a number of forest types that are determined by the specific conditions of the environment there, including the climate, soil, geology, and biotic activity.

TYPES OF FOREST COVER

Very Dense Forest: Canopy density of **over 70%**

Moderately Dense Forest: Canopy density between **40-70%**

Open Forest: Canopy density between **10-40%**

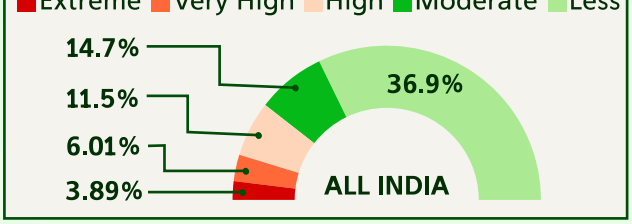
WHAT ARE THE THREATS THAT INDIA IS FACING WHILE CONSERVING FORESTS?

Forests have long been threatened by a variety of destructive agents and each threat can have a devastating impact on the landscape, offsetting the careful balance required for a forest to stay healthy and resilient.These threats can be broadly divided into natural and anthropogenic threats.

NATURAL THREATS

- **Forest Fires:** Forest fires in India are most destructive in dry season. It can have multiple **adverse effects on the forest cover, soil, tree growth, vegetation, and the overall flora and fauna.** Fires render several hectares of forest useless and leave behind ash, making it unfit for any vegetation growth.
  - **Uttarakhand and Himachal Pradesh** are the two states that witness the most frequent forest fires annually.
- **Natural disasters and disturbances:** Natural disasters such as **floods, landslides, snow avalanches and tsunamis cause forest loss** every year.

HOW FIRE-PRONE ARE FORESTS?



- For example, in **2018 Kerala floods, landslides and flash floods caused loss of several wild animals, widespread deforestation and land erosion** inside the forests of the state. Several trees were uprooted while roads and bridges were washed away by flash floods.

- **Climate Change:** While forests can help to combat climate change, they are also **highly vulnerable to changing climatic conditions.** This often results in a **loss of forests, their biodiversity, and their ability to mitigate the impacts** of climate change. Furthermore, **increased levels of CO2 can heavily affect plant growth.**
  - Also, climate change indirectly aggravates the severity and occurrence of natural disasters which also affects the conservation of forests.

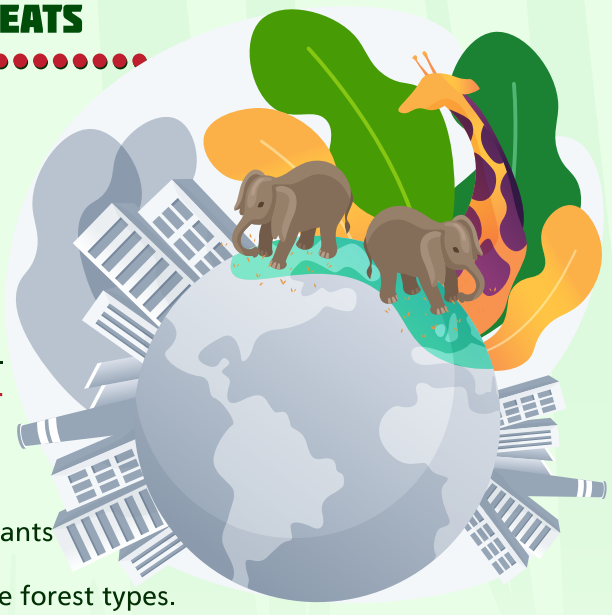
- **Plant disease, insects, and pests:** Increasing movement of seeds and plants and international trade and travel have increased the risk of accidental introductions of forest pests and insects. Large tracts of forest cover suffer from plant diseases, which lead to considerable **loss of forest wealth.** For example, thousands of hectares of **Sal forests in Madhya Pradesh and Chhattisgarh are being threatened** by sal borer for which no remedial measures have been effective so far.
  - Also, **alien invasive species –** pests, microorganisms or trees that are non-native to a particular ecosystem are likely to cause **economic or environmental harm** and **threaten the native forest species.** For example, **in Kerala,** invasive species like the **water hyacinth and giant salvinia,** present in the backwaters of the Kuttanad region, had **started colonising paddy fields,** cultivated lands and other isolated water bodies in nearby areas.

IMPACT OF COVID ON FOREST ECOSYSTEMS

The COVID-19 pandemic has been driving losses of lives and livelihoods, extreme poverty, inequality, and food insecurity. **Forests are acting as safety nets** with more people among the rural poor turning to forest products for their subsistence needs during this crisis. As a result, these ecosystems are beginning to show signs of stress. These stresses can be understood through following Impact pathways:

- **Economic:** Pandemic has dried the investment and finance directed towards conservation of forests.
- **Social:** The pandemic has had direct impact on forest dependent populations regarding employment labour market and livelihoods.
- **Environmental:** Weakening of the capacity of forest sector institutions to engage effectively in meeting tree planting targets and monitoring of forest resources to reduce ills such as deforestation and forest fires.

ANTHROPOGENIC THREATS



- **Threats to the Ecosystem:**
  - **Habitat loss, fragmentation, degradation, and deforestation:** As populations increase, the villages expand further into forest land, converting these **habitats into agricultural land and grazing spots and causing large scale deforestation.** Large areas of the forest are also being diverted for **developmental projects, displacing wildlife and local communities** living in the fringes.
    - For example, **hydroelectric dams** can flood upstream forests, causing **widespread forest loss, habitat degradation, and the displacement of forest communities.**
  - **Atmospheric pollution:** Air pollutants may **damage forests directly via the foliage, damaging living tissue, impairs photosynthesis and the ability to respirate directly and indirectly via the soil.** Air pollutants weaken trees, cause changes in biogeochemical cycling, and **lower tree resistance to insects and diseases** and affect function of diverse forest types.
  - **Urbanization:** Increased waste, sanitation, and pollution, because of urbanization indirectly threatens the forest ecosystem. For instance, **building roads through forests fragments the landscape** and endangers wildlife habitat, making it easier for illegal loggers to exploit the forest.

- **Wildlife threats:**
  - **Poaching:** The **over-exploitation of wildlife** for both local and commercial purposes is one of the most serious **threats to wildlife and biodiversity** in India. Local populations rely on bush meat(meat of wild animals) to survive, while poachers decimate wildlife populations to supply an ever-growing international demand. For example, poaching has been the major reason for the **decline in tiger populations.**

- **Human-wildlife conflict:** In most areas, the cluster of forests are surrounded by heavily populated villages that depend on forest resources for their livelihood and energy needs. This results in frequent cases of human-wildlife conflict, when animals pose a direct and recurring threat to the livelihood or safety of people, leading to the persecution of that species.

- **Institutional threats:**
  - **Lack of good governance and Institutional capacity:** This can hinder any progress towards policy changes, conservation, or sustainable natural resource management in the forests. In addition, poor governance can lead to corruption.
    - As a result, the above generally leads to **limited government budgets for conservation,** which in turn leads to **insufficient staff numbers, poor training and low morale at forestry and wildlife departments** rendering them ineffective.
  - **Lack of awareness of scale of the problem:** The people who rely on the forest, and its natural resources, believe that the forest is 'endless and its resources will never run out'. This limited awareness gets further accentuated with **lack of data, monitoring and evaluation,** resulting in poor knowledge base regarding need and method of conservation.
  - **Limited capacity of NGOs and CBOs:** Disconnect between decisions made at a national level and at the local village or community level along with lack of resources with the **local NGOs and community-based organisations (CBOs)** affects their ability to contribute to sustainable and natural resource management.

WHAT EFFORTS HAVE BEEN MADE BY THE GOVERNMENT TO OVERCOME THE THREATS?

Since independence, the Government of India has taken several steps to ameliorate these threats. These efforts can be broadly understood through following areas-

- **Legislative Support:** The Indian dispensation has overtime passed several legislations which protect the forests in some form or the other. These include the Wildlife (Protection) Act, 1972, the Forest Conservation Act, 1980, Environment Protection Act, 1986 and the Wildlife (Protection) Amendment Act, 2006 among others.

- **Environmental Schemes:** The Ministry of Environment, Forest and Climate change has implemented the National River Conservation Programme, sub-schemes of Conservation of Natural Resources and Ecosystems, Green India Mission, and National Afforestation Programme, National Coastal Management Programme, National Mission on Himalayan Studies (under Climate Change Program) under the Central Sector & Centrally Sponsored Schemes of Government of India. Some of the critical ones are described below-
  - **National Afforestation Programme (NAP):** It envisages **ecological restoration of degraded forests** and to develop the forest resources with peoples' participation, with focus on improvement in livelihoods of the forest-fringe communities, especially the poor.
    - It aims to **support and accelerate the on-going process of devolving forest conservation, protection, management, and development functions** to the Joint Forest Management Committees (JFMCs) at the village level, which are registered societies.
  - **National Mission for a Green India (GIM)** aims at **improving the quality of forest** and increase in forest cover besides cross sectoral activities on landscape basis.
  - **Forest Fire Prevention & Management Scheme (FFPM)** is the only **centrally funded program** specifically dedicated to assist the states in dealing with forest fires. It helps to **minimize forest fires by informing, enabling, and empowering forest fringe communities** and incentivizing them to work with the State Forest Departments.

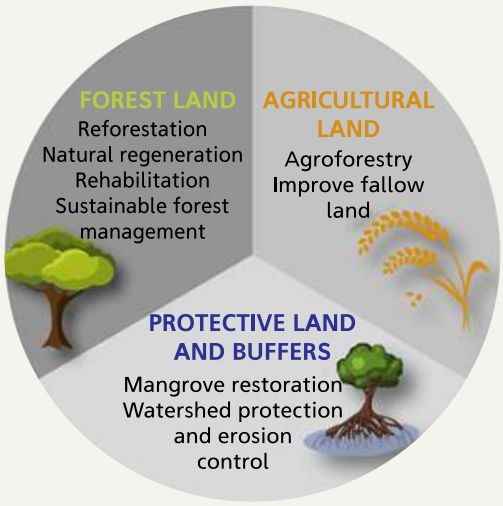
- **International Collaboration:** Several steps have been taken as part of the international efforts for forest conservation. These include implementation of the United Nations Convention to Combat Desertification (UNCCD) targets, Convention on Biological Diversity (CBD) targets, and forest conservation as part of India's Intended Nationally Determined Goals (INDCs) to Paris Climate Deal etc.

WHAT COULD BE THE POTENTIAL STRATEGIES FOR FOREST CONSERVATION AND THEIR SUSTAINABLE MANAGEMENT?

- **Forest Landscape Restoration (FLR):** It is the ongoing **process of regaining ecological functionality and enhancing human well-being** across deforested or degraded forest landscapes. FLR focuses not only on forests but also on the restoration of the whole area, to create multiple benefits and different land uses. Its examples include Wasteland Reclamation Strategies and approaches like Coastal Regulation Zone (CRZ) demarcations.
  - FLR landscapes are typically categorized into **three land use types,** each incorporating different options for forest landscape restoration (*see infographic*).
  - On similar lines, International Union for Conservation for Nature (IUCN) and World resource institute (WRI) have also developed a proven **Restoration Opportunities Methodology Assessment (ROAM)** with practical steps for diverse stakeholders to restore landscapes at any scale.

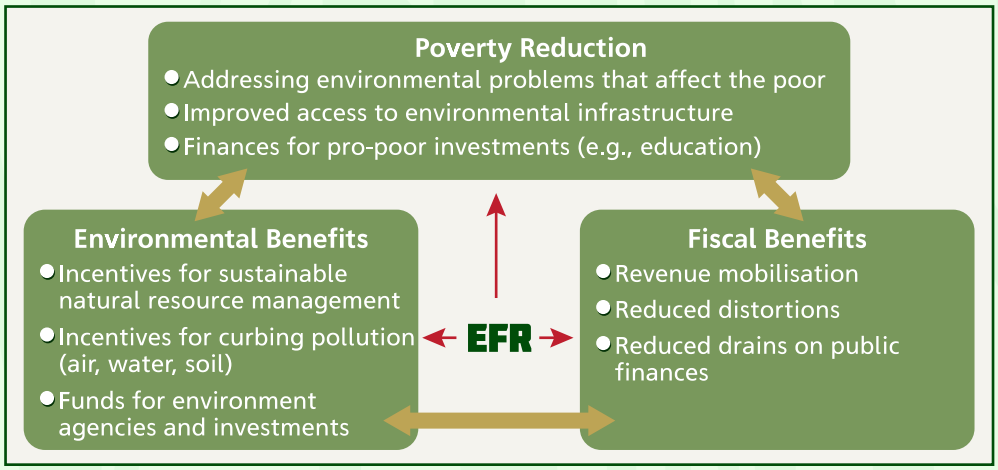
RESTORATION BENEFITS

- Climate mitigation and adaptation
- Biodiversity conservation
- Ecosystem services
- Local livelihoods
- Economic gains
- Food security
- Well-being

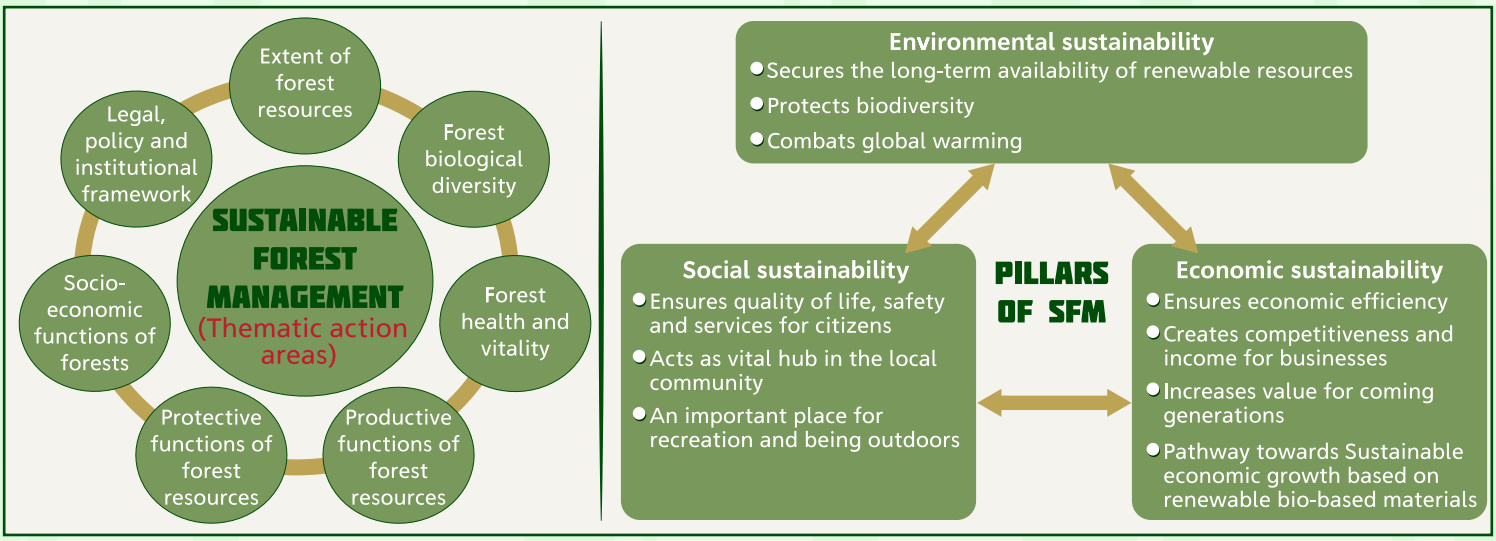


- **Community forest management (CFM):** It increases the role of local people in **governing and managing forest resources.** Many communities in developing countries have found this method effective in **transforming natural forests from the deteriorating state to the sustainable state.**
  - There have been several cases of community-based forestry management around the world that successfully **integrates forest conservation and rural development.** Most prominent among them is **joint forest management (JFM)** in India.
  - For instance, **Sacred groves** are one of the forest ecosystems **conserved by local communities** reinforced by **religious sentiments towards the forests** in Western Ghats of India. Sacred groves are an example for positive human intervention in conserving forests.
- **Carbon Credits approach:** A carbon credit is a permit that allows the company that holds it to emit a certain amount of carbon dioxide or other greenhouse gases. One credit permits the emission of a mass equal to one ton of carbon dioxide.
  - These carbon credits can be bought, traded, or sold to governments, companies or individuals seeking to complement their internal emission reductions and to further decrease their carbon footprints.
  - Finance from the sales is channeled to forest countries and communities, providing alternative livelihoods for people who until then had relied on depleting the forest cover. This finance also **supports new jobs, wildlife protection, education, clean water, and other initiatives** that seek to transform the local economy away from reliance on the forest.

- **Environmental Fiscal Reform (EFR):** It is the **reengineering of tax systems** into more friendly and environmentally growing ones where the **tax burden is shifted from income resources,** and instead **imposed exponentially on factors that adversely affect the environment** such as pollution, consumption, resource depletion, non-recyclable waste, and civil construction.
  - EFR helps in **forest conservation, slow down deforestation activities, manage land use,** addresses gaps in the climate and forest policy landscape **and improving ecosystem health** as part of the sustainable development particularly in low-income countries.
  - EFR can help **mobilise revenue for governments, improve environmental management practices, conserve resources** and **reduce poverty.**



- **Encouraging investments in forests as a business case:** In the face of the interconnected crises of nature loss and climate change, investing in forest conservation and restoration can benefit businesses as they become leading actors in the transition to a nature-positive, net-zero economy. For instance, investing in Forest Conservation would protect value chains from physical effects of climate change and loss of natural capital.
  - Businesses would support **creation of standardization in terms of guidelines and certification,** addressing gaps in awareness of forest conservation and restoration activities.
- **Sustainable forest management (SFM):** SFM is the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and their potential to fulfil, present as well as future needs.
  - To enable the broad vision of SFM, a set of 21 indicators (divided in 7 thematic areas) have been created as **global core set of forest-related indicators (GCS)** that measures progress towards Global Forest Goals and their associated targets.



CONCLUSION

The issue of Forest Conservation is too complex and large to be solved through a single approach or by a single stakeholder. The problem must be approached through multiple pathways, considering the local issues, engaging with local people,and creating tailor made solutions for respective areas.This local approach must be supported through a broad framework which enables cooperation and coordination at national and international level. Coming together of all stakeholders, at all possible levels, contributing in different ways has the potential to create a truly sustainable forest management framework.

TOPIC AT A GLANCE

Conservation and its importance

Conservation is the **act of protecting Earth's natural resources** so that they can persist for future generations.The impact that Forest Conservation has on human lives can be illustrated through the linkage between UNSPF's six Global Forest Goals (GFGs) and the SDGs-

GFG 1 Reverse Forest Cover Loss

Global Forest Goal 1 is linked with **SDGs 13 (climate action) and 15 (life on land).**

GFG 2 Improve Forest Benefits and Livelihoods

Global Forest Goal 2 is linked with **SDGs 2 (zero hunger) and 6 (clean water and sanitation).**

GFG 3 Protect Forests and Use Sustainable Forest Products

Global Forest Goal 3 is linked with **SDGs 7 (affordable and clean energy) and 15.**

GFG 4 Mobilize Resources

Global Forest Goal 4 is linked with **SDGs 1 (no poverty), 3 (good health & well-being), 8 (decent work and economic growth) and 17 (partnership for goals).**

GFG 5 Promote Inclusive Forest Governance

Global Forest Goal 5 is linked with **SDGs 2, 7, 11 (sustainable cities and communities) and 16 (peace, justice & strong institutions).**

GFG 6 Cooperate and Work Across Sectors

Global Forest Goal 6 is linked with **SDGs 5 (gender equality), 11, 12 (responsible consumption & production), 15.**

Natural threats to Forest Conservation

- **Forest Fires:** It can have multiple **adverse effects on the forest cover, soil, tree growth, vegetation, and the overall flora and fauna.**
- **Natural disasters and disturbances:** Natural disasters such as **floods, landslides, snow avalanches and tsunamis cause forest loss** every year.
- **Climate Change:** It results in **a loss of forests, their biodiversity, and** indirectly aggravates the severity of **natural disasters.**
- **Plant disease, insects, and pests:** Large tracts of forest cover suffer from plant diseases, which lead to considerable **loss of forest wealth.**

Anthropogenic threats to Forest Conservation

- **Threats to the Ecosystem:** These include **Habitat loss, fragmentation, degradation, and deforestation, threats associated with air pollution** like foliage, damaging living tissue etc. and **threats due to increasing urbanization.**
- **Wildlife threats:** These include **over-exploitation of wildlife** for both local and commercial purposes via poaching and **increasing cases of Human-Wildlife conflict.**
- **Institutional threats:** These include **lack of good governance and Institutional capacity, lack of awareness of scale of the problem** and **limited capacity of NGOs and CBOs.**

Efforts made by the government to overcome these threats

- **Legislative support** with regard to wildlife and environmental conservation among others.
- **Environmental Schemes** such as **National Afforestation Programme (NAP), National Mission for a Green India (GIM)** and **Forest Fire Prevention & Management Scheme (FFPM).**
- **International Cooperation by** participating in international conventions and also encouraging international cooperation on conservation via **initiatives like International Solar Alliance (ISA).**

Potential strategies for forest conservation and their sustainable management

- **Forest Landscape Restoration (FLR):** FLR focuses not only on forests but on the restoration of the whole area, to **create multiple benefits and different land uses.** E.g. Coastal Regulation Zone (CRZ) demarcations.
- **Community forest management (CFM):** It increases the role of local people in **governing and managing forest resources.** E.g., the methodology of **Joint Forest Management (JFM) in India.**
- **Carbon Credits approach:** It enables quantification and trading of emissions of greenhouse gases. These funds are indirectly channelled towards conservation of wildlife and forest ecosystems.
- **Environmental Fiscal Reform (EFR):** It is the **reengineering of tax systems** into more friendly and environmentally growing ones where the **tax burden is shifted from income resources,** and instead **imposed exponentially on factors that adversely affect the environment.**
- **Encouraging investments in forests as a business case:** Investing in **forest conservation and restoration can benefit businesses** as they become leading actors in the transition to a nature-positive, net-zero economy.
- **Sustainable forest management (SFM):** SFM is the stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and their potential to fulfil, present as well as future needs.